Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_

**Honors Biology Study Guide: Transport Across Cell Membrane**

**Cell Membrane Structure and Function**

* Cell membrane involved in maintaining **homeostasis** (a characteristic of life)
* Know the structure, properties, location, and function of the parts of the cell membrane.
  + Polar phosphate-glycerol “heads” = hydrophilic
  + Non polar fatty acid chains “tails” = hydrophobic
  + Cholesterol
  + Transport protein (ex. channels)
  + Glycoproteins, glycolipids
  + Cytoskeleton
* BE ABLE TO DRAW and label the cell membrane in detail!

**Passive Transport**

* General characteristics?
* Simple diffusion
  + What molecules move across the membrane this way?
* Osmosis
  + Isotonic
  + Hypotonic
  + Hypertonic
* Facilitated diffusion (channels, carriers)
  + What molecules move across the membrane this way?
* Real-world application
  + Why should one not drink too much salt water? What happens at the cellular level?
  + Why, on rare occasions, does a marathon runner die from drinking water? What happens at the cellular level?
* Be able to describe what happened in the labs and WHY:
  + - Raisin in water
    - Food dye in water
    - Baggie filled with cornstarch in beaker of iodine
    - Egg in different solutions
    - Plasmolysis in onion cells

**Active Transport**

* General characteristics?
* Transport proteins (pumps)
  + Example?

**Bulk Transport using vesicles**

* How different from other types of transport?
* Endocytosis (related to endosymbiosis)
  + Phagocytosis
    - Example? (think immune system)
* Exocytosis

*Could you identify what type of transport was occurring if shown a picture?*

**Endosymbiotic Theory**

* Describes the origin of mitochondria and chloroplasts as organelles in eukaryotic cells
  + Mitochondria evolved from....
  + Chloroplasts evolved from…
* Explain specifically how mitochondria and chloroplasts came to be in eukaryotic cells
* Give three main pieces of evidence
* Name of woman who first proposed this theory
* Why do we only have mitochondrial DNA from our mom?

Other Resources

* Notes, worksheets, concept map
* Chapter 3, including homework answers
* Videos
  + In Da Club: Membrane and Transport Crash Course
  + NPR video: Flu Attack! How Virus Invades Your Body
  + McGraw-Hill Na+/K+ pump animation